THE VETERINARY RECORD

A Weekly Journal for the Profession.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

No. 1521. SEPTEMBER 1, 1917. VOL. XXX.

A BOARD OF AGRICULTURE NOTE.

On another page we reprint from *The Farmers' Gazette* (Dublin) an account of feeding results, prepared by the Chief Veterinary Officer to the Board of Agriculture, on cases recently inquired into at the Board's Laboratory. It is no recent discovery that *S. Jacobæa* possesses injurious properties, but the information has lain hid in a few text-books, useless, and almost forgotten. It was mentioned in connection with horses in *The American Veterinary Review* six or seven years back; but so far as we know this present note is the first definite warning that the agriculturist in this country has received as to its effect on cattle. The plant is a common one in many districts, found frequently in poor pastures and waste land, but seldom in good pastures, and rarely in arable. In old herbals it is called *Herbæ Sancti Jacobi*, or *Sancti Jacobi flos*; and in one it is, curiously enough, described as "a certaine remedie to help the Staggers in Horses;" whence, probably, its names "stagger-wort" and "segrum."

But its chief interest in the present connection lies in the linking up of veterinary work with agriculture—a position reached years ago in nearly every country but our own, where, until recent years, the mutual interest has been little more than nominal. If the demonstration by the present war of the necessity of good agriculture to the existence of the State is sufficient to divert the attention of our rulers from their squabbling and self-seeking, and to convince them that there is room for every capable man amongst them in keeping the huge machine running at its full efficiency, the veterinary profession may look forward to a more useful and more honoured future.

"THE VETERINARY REVIEW."

The August number of the new journal edited by Dr. O. Charnock Bradley is published, and fully bears out the high promise of the first one. It is distinctly larger than either of its predecessors—the three together run to 358 pages, of which the first fills 102, the second 114, and the third 142.

No lessening of the quality of the contents accompanies the increase in size; and the present number confirms the impression that the journal will occupy a place in our literature which no other publication in this country has hitherto attempted.

One original contribution appears—an article by Capt. Frank Chambers, A.V.C., upon the transmission of animal trypanosomiasis in Northern Rhodesia by blood-sucking flies other than *Glossina*, which indicates that the problem is a wider one than was at first supposed.

There are 73 pages of abstracts from British and foreign sources bearing upon almost every branch of veterinary activity, divided in accordance with the classes of subjects into 17 sections. A glance at the number of pages allotted to some of these sections may help to indicate the editor's methods of selection; for dietetics occupies over five pages, infectious diseases 13, parasitology nearly 7, surgery over 10, toxicology 2, and tuberculosis 7. It will thus be seen that work of clinicians receives a due share of attention. Such subjects as genetics, laboratory culture methods, and physiology, while not overlooked, receive much less space.

Three shorter divisions—notices of reports, reviews of books, and notes upon books, follow. The final division of some 42 pages is a bibliography of recently published papers and articles. For the most part this is an enumeration of titles, authors, and sources, though occasionally brief comments are appended; and to some readers this may prove of little interest. But there are workers to whom such a list will be invaluable.

Those who know the amount of literature bearing upon veterinary science now published will realise the good that this journal may accomplish, and will agree that it might advantageously be augmented in the near future.

OPEN-AIR TREATMENT OF TETANUS IN THE HORSE.

In last Saturday's *Record* Mr. Penhale records a case of tetanus treated by the open-air method, which he evidently considers novel. It is over thirteen years ago since I treated the first case in the open, and like Mr. Penhale's, it was successful.

The patient was a yearling colt which had been docked. It was noticed at grass some time after, and had been a few days stiff when I saw it. Being able to reach the ground he was allowed to remain in the field: nothing was done by way of treatment, and he gradually recovered. Other cases were reported in the periodicals before this time, so my case was not the first.

Another young horse which took tetanus at grass and was allowed to remain in the field, died.

Six years ago I had a case of a farm horse which took ill at grass with tetanus. This was a very mild case; the owner thought there was either something amiss with his back or that he was becoming a shiverer. Being quite able to gather his food he was never brought in, and did well without treatment. The disease may vary greatly in severity. One case I had was able to do a little light work on the land during the time he was ill.

Selected cases might be tried in the open, or those that take ill at grass could be watched and

allowed to remain as long as it was considered safe. Practitioners will readily understand that in most cases we meet horses can scarcely be moved from on stall to another, or through a door, and surely it would be courting disaster to turn such cases out to the grass or the open.

I am now almost convinced that beyond slings and good nursing little can be done by way of treatment. Recoveries that are credited to serum, or any other treatment, may be safely put down to the *vis medicatrix naturæ*, and the degree of the trouble; for if we continue with any particular treatment we soon come to a disappointment.

Duns. WILLIAM LOTHIAN, M.R.C.V.S.

ABSTRACTS FROM FOREIGN JOURNALS.

THE ETIOLOGY AND SPECIFIC PROPHYLAXIS OF EXUDATIVE PLEURO-PNEUMONIA OF THE GOAT.

Prof. N. Mori has observed, in Southern and Central Italy, a special disease of the goat which, from his clinical, anatomo-pathological, microbiological, and experimental studies of it, he has identified with the *boufrida* of Algeria, studied by Thomas in 1873, and with the pleuro-pneumonia observed in Germany in 1894 and 1895 by Pusch, Storch, and Holzendorf, and in the Lower Pyrenees in 1895 by Leclainche. Mori published a preliminary account of his observations in *Il Nuovo Ercolani* of last year. He proposes to make a complete study of the disease in a future work; and, in the article under notice, he confines himself to the results of his microscopic investigation, cultivation, and experimental transmission, and his attempts at specific prophylaxis and at treatment by means of the serous exudate collected from the pleuræ of infected animals.

Microscopic examination demonstrated streptococci and bacilli in the lungs and in the exudate, which probably indicate a bacterial invasion during the death agony or post-mortem. In the pathological material, Mori observed frequently, but always in limited quantity, elements which by their size and shape appeared similar to the conidia of hyphomycetes. Sometimes these were isolated, sometimes they were grouped by pairs, in small chains or irregularly. They possessed a greenish refractility, and stained with difficulty. The best staining results were obtained with an aqueous solution of methyl violet, which gave an intense peripheral colouration.

One constant feature, which Mori considers of great etiological importance, was the presence of special corpuscles, one-tenth the size of leucocytes. These, when examined fresh, appeared rounded or slightly oval, of a greenish colour, and refractile. They were encountered in the pulmonary lesions and in the contents of the bronchi, but were most numerous in the fibrinous pleuritic exudate. They were especially localised in the cytoplasm of the polynuclear neutrophile leucocytes. All attempts to stain them failed. Mori compares these corpuscles of caprine exudative pleuro-pneumonia to the cellular inclusions described in the diseases caused by filtrable viruses, and especially to the corpuscles of Babes in rabies, and to the corpuscles recently encountered by Lesche in Landry's paralysis.

Attempts at cultivation in the ordinary media almost always failed. Considering the corpuscles as endo-cellular parasites, Mori prepared a liquid nutrient medium for them in which the integrity of the cellular elements could be preserved for a sufficiently long time. In this medium he placed small pieces of the solid exudate collected during the disease. He found that in the tubes thus sown the exudate became thicker in three or four days, but by prolonging the cultivation the exudate became dissociated and imparted a uniform milky aspect to the cultural liquid. Finally, he was able to collect a uniform whitish powdery extract from the bottom of the tube, while the rest of the liquid was slightly milky in appearance.

Under the microscope the cultural deposit showed many more corpuscles than the fibrinous exudate; and all these corpuscles showed a distinct acid-resistance, and stained by the Ziehl-Mori method. The cells preserved their form for some time. The corpuscles were preserved in the tubes, retaining their acid-resistance, for nearly three months. Mori raises the question whether this represents a true cultivation of the specific germ of caprine exudative pleuro-pneumonia, or a simple preservation of it in a suitable medium. It appears to be more probable that it represents a true cultivation.

Nocard and Leclainche say that attemps at the experimental transmission of this disease have always failed. Mori, by the endo-pleural inoculation of specific material, caused only a thermic reaction of a few days duration and other phenomena of little importance. By endo-pulmonary or endo-cardiac inoculations he succeeded in causing a morbid condition which was more intense though not comparable with the natural disease, and death. Inoculation of a culture of the acid resistant corpuscles into a kid caused a morbid condition similar to the natural disease. Rabbits, pigeons, and dogs never reacted to inoculation; but subcutaneous, pleural, or endo-pulmonary inoculation of guinea-pigs produced a characteristic symptomatology, and death.

As regards the nature of the specific virus, Mori thinks that it must be due to a true hyphomycete which is capable of invading the organism in its mycelial condition, and becomes transformed within the organism into the corpuscular, and especially to the endo-cellular form here described.

Starting from the fact that the serous exudate of the pleura is incapable of reproducing the disease when inoculated into goats, Mori has made experiments in specific prophylaxis with pleuritic exudate recently collected from the pleuræ of animals slaughtered in the first days of the disease. The animals subjected to these experiments were inoculated subcutaneously or into the pleural sac. The results obtained by various veterinarians (Presutti, Capogrosso) appear encouraging. The exudate used for preventive purposes should not only be filtered, but also should be submitted to a prolonged

centrifugation in order to ensure its stability.—(*Revista de Higiene y Sanidad Veterinaria*).

[An account of what has been hitherto known of this disease appears in the current translation of Hutyra and Marek's work, Vol. I, page 406. The name there given to the condition is "Infectious Pleuro-pneumonia of goats." There is another condition called "Infectious Pneumonia of Goats," by Hutyra and Marek (Vol. I, page 124). This is transmissible by inoculation, and should be differentiated from the disease dealt with above.—*Transl.*]

THE LARVÆ OF GASTROPHILUS EQUI AND THEIR MEANS OF ACCESS INTO THE ORGANISM.

The mode of access of the larvæ of the equine *Æstrus* into the digestive canal of their host, and the primary conditions of their development, are still unknown. Certain authors (Numan, Brauer) hold that the young larvæ, after hatching, reach the horse's mouth and nostrils unaided. According to the majority of authors, they are introduced into the mouth by licking, and then swallowed. Cholodkovsky states that the larvæ, at their escape from the egg, penetrate into the epidermis of the horse, causing a pruritus which induces the animal to nibble, extract the larvæ and swallow them. Portschinsky thinks that only some larvæ are introduced under the skin and that these do not continue to evolve there, but that their irritant action induces the horse to lick and to collect with his tongue the other larvae remaining upon the skin, which pass direct into his digestive tract.

E. Rouband, in a communication to the Academy of Sciences, reports some researches of his own upon the question; his conclusions may be summarised as follows:—The eggs of the *Æstrus* do not open spontaneously; the larva may remain in the egg ready for hatching for some weeks. The larva is liberated by mechanical contact. The author has ascertained that a sharp push upon the anterior pole of the egg causes the operculum to open, the larva is liberated and escapes immediately. Contact with a moist object, such as the tongue, is not necessary; abrupt contact against the lips and teeth will cause effectual opening of the operculum. It is known that horses lick themselves only very rarely; usually they react to irritations by scraping with the mouth.

The larva, once in contact with the mucous membrane of the lips or gums, immediately penetrates beneath the epithelium; thence it progresses towards the deep parts of the mouth, growing until its first moulting. It does not perforate the skin.

The probability of infection may be greatly diminished by from time to time lightly rubbing the parts of the body where the eggs of these parasites are deposited, in order to cause the premature release of the larvæ outside the body of the horse.—(*La Clinica Veterinaria.*)

THE EFFECT OF WINE UPON EGG-LAYING IN FOWLS.

A French poultry-keeper, in an article in *L'Année Scientifique Industrielle*, states that fowls to which wine is adminstered lay an extremely large number of eggs. The experiments upon which the assertion is based are very convincing.

Twelve fowls, each sixteen months old, were divided into two lots. The fowls of the first lot received 60 grammes of grain every morning, 160 grammes of cooked potatoes at midday, and 50 grammes of bread in the evening, with green food *ad lib.* Those of the second lot received the same diet, with the addition of 100 grammes each of wine daily. The wine was given by mixing it with the bread so as to form a thick soup, which the fowls devoured with avidity.

The results were surprising. The fowls of the first lot laid on an average four eggs each in October, one in November, none in December, and 22 in January. Those of the second lot, which had daily received wine, each laid on an average 28 eggs in October, 57 in November, 44 in December, and 46 January, representing a production of 148 eggs in excess of that yielded without the wine.

The same experiment was repeated upon two series of fowls only eight months old, with analogous results. Each fowl of the series fed with wine, in the same space of time, yielded on an average 87 more eggs than the "abstemious" fowls of the other series.—(*La Clinica Veterinaria*).

POISONING IN CATTLE BY RAGWORT.

"It is not generally known that the common British Ragwort (*Senecio Jacobæa, L.*) is poisonous to cattle. This probably arises from the fact that poisoning under natural conditions is a slow process, that is to say, an animal does not receive, and could not eat enough of the weed at one meal to cause acute poisoning. The poison is cumulative in its action; and with continuous doses the amount of poison which becomes available is sufficient in time to cause very serious symptoms, which often end in death.

The following represent broadly the circumstances of the cases which have recently come to the notice of the Board of Agriculture. Pastures containing a considerable proportion of the weed were cropped in the hope that the comparatively early cropping might help to get rid of it. The crop was made into hay, and, owing to the prolonged spell of cold weather and the scarcity of other feeding stuffs, this was fed later and in considerable amount to animals at pasture. In the cases which have recently been inquired into at the Board's Laboratory, it was not possible to say definitely what quantity of ragwort had been consumed by the animals before symptoms of illness became visible, as the dried forage containing the weed had been simply dumped on the pastures, and the cattle allowed to partake of it at will. In one instance the feeding was known to have begun on the 21st February and continued until the 17th April —55 days. The animals were then changed to other pastures, and feeding on the forage which was by this time under suspicion, was discontinued. The first visibly affected animal was noticed on 6th April—44 days after feeding on ragwort commenced. The time which elapsed between the first appearance of definite symptoms and death varied from a few days up to a month. Some of the animals died a few days after the appearance of definite symptoms. In others the symptoms continued for a month or more, and deaths occurred at the later dates. It would appear also that animals which have received a toxic amount of ragwort over a certain period may seem healthy at the time when feeding on the material is discontinued, may nevertheless

develop active symptoms of poisoning, and die at a later period. Thus, in the cases which have been investigated, some of the animals did not show definite symptoms until twelve days or more after the feeding with ragwort had been discontinued.

In the early stages the animals have the appearance of being hide-bound. Later they walk with a staggering gait, some appearing to be partially blind or heedless of where they go. Later they become very excitable, and will charge at anyone who approaches them. In some there may be diarrhœa, but usually constipation is so marked that it causes violent straining. The pulse is weak and rapid, but the temperature remains normal.

When death takes place in the earlier stages of poisoning the principal lesions found are inflammation of the mucous membrane of the bowel. The omentum is dropsical. Small hæmorrhages are present under the mucous membrane of the bowel and in the pericardium. In acute cases the liver is firmer than normal and yellow in colour, the yellow colour apparently arising from fatty degeneration of the liver cells. In chronic cases there is cirrhosis of the liver, and in such cases the abdominal cavity contains fluid. This is not unlike what is seen in some animals affected with fluke disease. The lungs are congested.

There is no cure, and prevention resolves itself into removing the ragwort from the forage or eradicating it from the pastures. In the *Journal* of the Irish Department, McGovern makes the following recommendations in relation to the eradication of the weed :—

'Ragwort may be exterminated by preventing the plant from seeding. This may be done : (*a*) by grazing the infested land with sheep in the winter and early spring ; (*b*) by cutting the plants in the flowering stage, either twice—the first cut being made early in July, and the second about six weeks later, there being no necessity to gather up the cut portions ; or once only, cutting being done late in July or early in August, the cut portions of the plants must be gathered up at once and destroyed by burning ; (*c*) by pulling the plants if circumstances permit, preferably early in July, when there is no need to collect and burn the pulled plants. If pulled later the plants must be collected and burned to prevent seeding.

It is most important to remember that since ragwort is a biennial plant, it is absolutely necessary on pasture land to carry out cutting or pulling during two successive seasons. It is clear that, in addition to the two-year-old flowering individuals present in a given summer there must also be a crop of one-year-old plants still in the rosette stage which will produce their flowering stalks during the second summer.

Further, since it is practically certain that the seeds of ragwort, like those of charlock, poppy, and some other plants, may lie buried in the soil still retaining their vitality for some time, any farming operations which may bring these seeds to the surfare will result in their germination, and a crop of ragwort derived from such seed is not an infrequent occurrence on land newly laid down in grass. Finally, owing to the ease with which the seed of ragwort is distributed by the wind, the re-seeding of land temporarily cleared of it is an easy matter when the plant is allowed to flourish and produce its seeds on neighbouring land. There is, therefore, the strongest reason for scheduling this plant as a noxious weed all over the country, and for throwing the responsibility for its eradication on the shoulders of all those who possess or occupy the land.'

Recommendation (*a*) does not necessarily mean that sheep are immune to poisoning by ragwort, although this is a somewhat general belief. There is reason to think that the flowering season—June, July, and early August—is the time when ragwort is most actively poisonous. The question of whether flowering ragwort is poisonous to sheep is now being investigated at the Board's Laboratory. From the experience acquired in practice of grazing sheep on ragwort pastures during the winter and early months of the year, it would seem reasonable to assume that the practice is not attended by bad results. It may be, however, that sheep grazed, even for a comparatively short period, on ragwort receive damage to important organs like the liver."

Thirtieth Annual Administration Report of the Bombay Veterinary College for the year 1915–16. [Abridged.]

Mr. K. Hewlett, the Principal of the College, held charge throughout the year under report. The staff remained unchanged and continued on duty throughout the year, with the exception of Mr. Phadke, who was absent on furlough from 10th April to 2nd July, while on military duty with horses on board ship on the voyage to Marseilles.

The results of the Supplementary and the Annual Examinations held in 1915–16 combined are as follows :

In the Final Year, or Class C, 30 students presented themselves and 16 passed, a percentage of 53·33 ; in the Second Year, or Class B, 26 students presented and 21 passed (80·77) ; in the First year, or Class A, 39 students presented, 25 passed (64·10).

Of the 37 new students, 7 had passed the School Final and 5 the Matriculation Examination. The remaining 25 passed the College entrance test or were otherwise eligible for admission. The new students classified according to caste were 21 Brahmins, three Marathas, three Lingayats, one Rajput, six other Hindus, two Mahomedans and one Parsi.

This year there were 25 applicants for the 11 scholarships. The Government of the Central Provinces continued the stipend to one student already at the College, and awarded a stipend to a new student. The Governof Ceylon continued the stipend to their student. The States of Radhanpur and Porebunder continued the scholarships to their students, and stipendary students were sent from the following States :—Gwalior, Indore, Junagadh, Jessalmer, Idah and Ramdurg. Besides these the Lingayat Education Fund continued stipends to three students. The Anjuman-i-Islam continued the Suleman Abdul Wahed scholarship to a Mahomedan student. At the close of the year there were 42 students in receipt of some assistance from scholarships, and 66 students without such assistance.

The Students' Hostel has been quite full throughout the year, and competition for accommodation is now quite keen. All arrangements in connection with the Hostel have been satisfactorily carried out by Mr. Dhakmarvala, the First Professor, who performs the duties of Superintendent of the Hostel.

The students have continued to avail themselves of the tennis courts, and Mr. Dhakmarvala has organised the playing of cricket and foot-ball. Staff Sergeant Farrier Town, the Instructor of Shoeing, has continued the usual drilling classes.

Clinical instruction. This was carried out as usual in the Bai Sakarbai Dinshaw Petit Hospital for Animals, which is affiliated to this College. During the year 4494 in-patients and 923 out-patients were treated, a total of 5417 patients. Of these 1343 were equines, 2722 bovines, and 1352 others. The average daily attendance was 355.

Employment of Graduates. Of the 16 students who who graduated in 1915, 11 are in the service of Government or Local bodies, two are in the service of Native States, and three are as yet unemployed. Of the 15 students who graduated in 1914, 12 are in the service of the Government or Local bodies, two are in the service of Native States, and one is unemployed. Of the 16

students who qualified in 1913, seven are in the service of the Government or Local bodies, four are in the service of Native States, two are in private practice, and three are unemployed. Thus out of the total of 47 graduates who have passed out of the College in the last three years, 30 are in the service of the Government or Local bodies, eight are in the service of Native States, two are in private practice, and seven are unemployed.

Extra Duties.

Throughout the year under report the Officers of the College and Glanders and Farcy Department have continued to assist the military authorities by attending to animals found by the Embarkation Veterinary Officer unfit to proceed to their destination. In this way 884 animals were treated during the year by the Principal, assisted by Messrs. Shaikh and Miranda, of the College Staff. Towards the close of the last and at the commencement of the present official year, a considerable number of cases of ringworm among the remounts intended for shipment overseas occurred. A segregation camp for these horses was formed in portion of the College Grounds, and another camp in a portion of Old Government House Grounds, Parel. These camps were placed in charge of Mr. Rebello, of the Glanders and Farcy Department, and Mr. Shaikh of the College Staff, respectively, assisted by a number of students, who acted as dressers under their orders. It was eventually decided to ship these animals together on a ship by themselves, and the Principal was asked to provide a Veterinary Officer and dressers. Mr. Phadke of the College Staff and four students volunteered their services, and accompanied the horses to France.

During April and May there was an extensive outbreak of influenza among remounts which were then arriving in Bombay in considerable numbers. The horses from one train were unloaded at Kurla and segregated at Wakola and Mr. Shaikh of the College Staff was placed in veterinary charge of this camp and did excellent work there in the sick line. The affected horses from the Cavalry Drafts Camp, Parel, were segregated at Worlee as well as in Parel Government House Grounds, Messrs. Haji and Kadri, of the Glanders and Farcy Department, being placed in charge respectively. At the termination of the outbreak these horses were entrained under the supervision of the College officers. On several occasions the Embarkation Veterinary Officer obtained assistance from officers of the College in discharging his duties at the Docks and elsewhere when it was impossible for him to attend to his duties single-handed. Mr. Sowerby, Mr. Shaikh, and Mr. Miranda assisted on several occasions in this way.

The Principal was requested by the Quarter-Master-General in India to obtain the services of Graduates of Indian Veterinary Colleges to take veterinary charge of horses in transit to Europe and elsewhere, and was able to make suitable arrangements for the veterinary supervision of 27 horse ships. Among the Graduates who volunteered for this purpose were the following servants of the Government of Bombay:—Messrs. Marathe, Lopez and Phatak, of the Bombay Civil Veterinary Department; Mr. Phadke, of the College Staff; and Mr. Rebello and Mr. D. G. Hadji, of the Glanders and Farcy Department. Mr. Hewlett continued to carry out his duty as Embarkation Veterinary Officer, Bombay, in addition to his ordinary civil duties throughout the year under report.

During the year under report the Principal was ordered to examine animals sent to the Hospital by the Courts, and to submit reports on them to the Magistrates concerned. In compliance with these orders the Principal examined and reported on 660 animals.

The Principal desires to record his appreciation of the way in which the Officers of the College have performed their duties, which, although considerably augmented, have been carried out cheerfully and well. Mr. Sowerby, the Assistant Principal, although only recently recovered from a severe illness, has worked very hard, having taken over some of the educational duties of the Principal, in addition to his ordinary work. Messrs. Miranda and Shaikh have done excellent work in connection with the military horses, and throughout the year have worked with most praiseworthy zeal and energy. A considerable amount of extra work in connection with correspondence regarding the military duty undertaken by the Principal has fallen on Mr. Pansare, the head clerk, and other members of the clerical establishment.

The large number of military horses which have required attention has thrown upon those students detailed as dressers a not inconsiderable amount of extra work which has been performed with cheerfulness in hours usually devoted to recreation.

K. Hewlett, I.C.V.D.,
Principal, Bombay Veterinary College.

[The Annual Report of the Glanders and Farcy Department records a continuance of the work. Animals seized numbered 33, of which 21 were found to be diseased within the meaning of the Act—Glanders 5: Epizootic Lymphangitis 3: Surra 13.]

Annual Administration Report of the Civil Veterinary Department, Bombay Presidency, for the year 1915–16. [Abridged.]

Major G. K. Walker held charge of the department throughout the year under report. He was on tour for 166 days and travelled 13,412 miles by rail and 1252 miles by road; in which he visited 14 districts for investigation and inspection, and interviewed district officers and others interested in the work of the department. He inspected 27 dispensaries and seven stallion stands once or more, and the Northcote Cattle Farm at Chharodi five times.

Other work included special investigations of an outbreak of rinderpest in the Dharwar District: and of an outbreak of surra in certain Panjrapoles in the Thana District.

President of the Board of Examiners, Bombay Veterinary College, in May, July and November, and of Madras Veterinary College, in December.

Member of the Board of Agriculture held at Pusa in February; of the Judging Committees of the Ahmednagar Horse Show, and of the Belgaum and Mhasvad Cattle Shows; of the Committee on the milk supply of large cities.

Attended the Poona Volunteer Rifles Camp of Exercise in January.

Mr. J. D. Buxy held the post of Deputy Superintendent throughout the year. He was 67 days on tour and travelled 4360 miles by rail and 966 miles by road: visited 14 districts, and inspected 31 dispensaries and six stallion stands: investigated several outbreaks of epizootic diseases during his tours, and supervised the work of the veterinary assistants. He attended the Mhasvad Cattle Show in the Satara District and acted as one of the judges: visited the Northcote Cattle Farm at Chharodi. He worked as personal assistant to the Superintendent, Civil Veterinary Department, during the year. In addition to his other duties he held charge of the offices of the Veterinary Inspectors of the Nasik and Poonah Divisions for short periods.

Veterinary instruction. The necessary practical training in inoculation work was given to newly joined men by Veterinary Inspectors in the field.

Treatment of Disease.

Contagious disease was reported from all the districts in the Presidency, and from the City of Bombay. The number of deaths recorded was 16,294, against 9378 in

the previous year. The increase was due mainly to the greater prevalence of rinderpest, which disease was responsible for more than three-fourths of the total mortality. In connection with the mortality statistics, which are prepared from statements submitted by Mamlatdars and Mahalkaris, it may be remarked that the increase is probably more apparent than real. Since epizootic disease reports have been obtained from veterinary assistants as a routine there is a greater check on the submission of the statistical returns, resulting in greater accuracy. Municipal authorities, except Bombay City, have not furnished systematic returns up to the present, but this is to be remedied in future. As the department increases in strength and efficiency statistics will tend to exactitude, which imports the discovery of more deaths than are at present reported.

During the year 1820 outbreaks were attended by Veterinary Assistants and 87 by Veterinary Inspectors. Owing to shortage of staff it is not possible to visit all outbreaks, but the increase in the number attended is satisfactory. Greater attention is being paid to this important work every year and valuable experience and information is being gained.

Epizootic disease in cattle is mainly spread by movements of animals, and in years of scarcity the danger is increased. It is doubtful if restriction of movements involving legislation is practicable at present.

There were 13,168 deaths from rinderpest reported, against 6833 in the previous year. The mortality in animals attacked was 44·8 per cent. No district was free from the disease. It was brought to notice that a number of bison died in the Kanara forests. The serious outbreak in the south of the Presidency which commenced in the previous year was imported from Mysore. It spread throughout the Dharwar District and affected the adjoining districts also. Since November the losses have greatly declined, and it is hoped that the intensity of the outbreak is over. Without legislation and a very large staff it is impossible to prevent a further recrudescence or guard against reinfection.

Foot-and-mouth disease was reported from every district. 20,007 animals were attacked, against 7348 in the previous year. The number of deaths reported was 291. This disease results in economic loss in working cattle and milch cows, but the mortality from it is usually insignificant.

Hæmorrhagic septicæmia occurred in 15 of the 20 districts of the Presidency. There were 1157 deaths reported, against 1494 in the previous year. The decrease was due mainly to the scanty rainfall in the northern districts. In many places the disease had disappeared before the arrival of the veterinary assistant, but the diagnosis was confirmed by microscopical examination in 21 outbreaks.

Black quarter prevailed in 12 districts, and 1024 deaths were reported. 142 outbreaks were attended, and the disease was diagnosed by microscopical examination in 18 instances.

Anthrax was reported from nine districts and caused 379 deaths. The disease was only verified in one outbreak out of 39 attended by veterinary assistants. It is rare to find a case alive, however quickly the report of an outbreak may be attended to.

Contagious disease in other animals than equines and bovines is rarely reported to this department. Pleuropneumonia and variola in goats and sheep, and rabies in dogs are sometimes notified. Spirochætosis in fowls was observed at Dharwar and diagnosed by the veterinary inspector.

Preventive inoculation against rinderpest and hæmorrhagic septicæmia was adopted, generally with considerable success. The several "emergency corps" of reserve under Inspectors were frequently employed with advantage, particularly in the Dharwar and Kanara Districts, where a large number of animals were inoculated. 79,706 inoculations against rinderpest were carried out in 421 outbreaks. It was ascertained that 448 animals died within 21 days of inoculation, but many of these must have been in the incubative stage of the disease when inoculated. Accurate results are difficult to obtain owing to the vague reports of the owners. 6555 uninoculated contact animals died.

It has been decided by Government that the expenditure on rinderpest serum shall be limited to Rs. 15,000 per annum, and it is proposed to concentrate our efforts on localities where cattle are valuable, and where success is most likely to be obtained. A heavy expenditure at present in districts where the disease is enzootic and the cattle inferior does not appear to be justified.

Serum inoculation in 14 outbreaks of hæmorrhagic septicæmia was adopted with satisfactory results, only one death occurring in inoculated animals, while 141 uninoculated animals died of the disease. The supply of this serum was limited, or more inoculations would have been carried out.

The number of villages visited by veterinary assistants during the year was 3445, against 3779 in the previous year. The decrease in the number is due to the fact that longer periods had to be spent in the villages affected with epizootics. A number of villages were visited in connection with the cattle survey that is being conducted by the staff and, in the case of new dispensaries, to acquaint the inhabitance with their existence. During their tours the veterinary assistants treated 27,481 cases of contagious diseases—mainly foot-and-mouth disease—and 16,124 for non-contagious ailments. 123 animals were castrated on tour. The increase in the numbers over last year is satisfactory, but more castration may be justifiably expected as the confidence of the owners is obtained.

Investigation. Some cases of poisoning in cattle from eating a plant called "Singia" (*Vinca pusilla*) were brought to notice in the Panch Mahals District.

Surveys are being conducted in regard to the incidence of hæmorrhagic septicæmia and black quarter in certain localities with a view to the adoption of vaccination against these diseases. It has been demonstrated that, in regard to the latter disease especially, they are not so seasonal as was expected, which adds to the difficulties of instituting vaccination. It is doubtful if very striking results can be hoped for, but the matter is still under consideration and investigation.

Outbreak duty and routine work have taken up most of the time of everyone concerned. As stated last year, a special staff for investigation is indicated. The matter will be represented in due course.

Four hundred and nineteen specimens were sent by the subordinate staff to the Sir Dinshaw Maneckji Petit Patho Bacteriological Laboratory at Parel for diagnosis, and 69 specimens to the museum.

Veterinary Dispensaries. A new dispensary was opened at Dhandhuka (Ahmedabad District). Several others have been proposed and sanctioned, but for financial reasons have not yet been equipped and opened.

The total number of patients treated was 139,748 at 53 dispensaries, against 126,915 at 52 in the previous year. There is steady progress in the number of patients treated and in the efficiency of the treatment provided. There is still a large proportion of cases not brought to the dispensary, advice and medicine being provided on the evidence of owners. This is unavoidable in many instances, but it should be discouraged as far as possible, as treatment cannot be satisfactorily provided under such circumstances.

Mr. D. P. Alur, of Sirsi, has generously offered to build a new dispensary at that place. No other dispensaries were built during the year. The Wadia Trust Fund, earmarked for the building of new veterinary dis-

pensaries, was diverted to famine relief in Gujarat. When money is available it is expected that a number of new buildings will be provided, as many of those in which dispensaries are now accommodated are unsuitable. Some existing buildings require alterations and additions.

The new standard plans have now been published and distributed. They should be of great use in new projects and when making improvements.

[The following section—Breeding operations, presents no noteworthy features. It is a record of the year's work showing a slight increase in the stock, but a decrease in the sales.

The section on "Subordinate Establishment" again points out that the Department is shorthanded. "In order to deal effectually with outbreaks of disease reserve men are required." A concluding remark is "The administration is unduly centralised, and the need for devolution becomes more apparent as the department developes."]

Feeding substitutes.

The following is taken from the current number of *The Scottish Farmer*:—

"Useful substitutes for all classes of stock can be found among edible Algæ, which are used in Scandinavian countries with success. These were formerly allowed to go to waste, but they can be collected commercially and used with success. Irish moss, showing an analysis of albuminoids 10 per cent., carbohydrates 60 per cent., is largely used, but the present price, £32 a ton, is too high for poultry keepers and others. There are, however, other mosses of the *laminaria* tribe, which may be termed sugar mosses, inasmuch as they contain 12 per cent. of mannite in addition to albuminoids, carbohydrates, etc. Mannite is sugar in a natural form, differing from ordinary sugar in the fact that it is incapable of undergoing vinous fermentation, and, therefore, is incapable of causing gastric or intestinal troubles. The present quantity of sugar moss or tangle available is up to 100 tons, and the wholesale price is £12 a ton, ex-wharf Liverpool, nett cash. Other mosses, such as sea wrack, also *halidrys siliquos*, contain mannite, but not in such quantities as those previously mentioned. Tangle or sugar moss is packed in bales, approximate weight 3 cwt., and would make exceptionally good food for poultry, pigs, ducks, etc. It only requires rinsing, then pour boiling water over it, allow it to swell, and dry off with meals, and it should be used up to 15 per cent. by weight of the total mash. The feeding qualities of these sugar mosses should be equal to those of oats. All these are eaten by the inhabitants of other countries.

If poultry and stock keepers would only combine or co-operate, all these available supplies which have hitherto been wasted in this country could be collected for them. The time for collecting the same is now; and unless orders are given at once they will not be available until next year. For egg production, add 7 to 10 per cent. of fish meat meal with the above. One can also use wheat offal meal with advantage. There are also edible bog mosses, of which I am obtaining particulars, and will report on the same as soon as possible. Any enquiries as to the further uses of these, I shall be pleased to answer.

Thorneycroft, Retford. J. R. B. ALLISON.

At a recent big sheep fair on the Wiltshire downs the sensation of the day was the appearance there of two girl shepherds, who had brought their sheep safely over many miles of difficult country.

ARMY VETERINARY SERVICE.

Extracts from *London Gazette*,

WAR OFFICE, WHITEHALL, Aug. 21.

The King has been pleased to award the Military Medal for bravery in the Field to the following:—

* * * *

Sgt. J. W. G. Page, SE/12305.
Sgt. F. C. Childs, SE/15677.

Aug. 25.

ORDER OF ST. MICHAEL AND ST. GEORGE.

The King has been pleased to give directions for the following appointments to the Most Distinguished Order of Saint Michael and Saint George, for services rendered in connexion with military operations in the field in Mesopotamia, to be dated June 4, 1917:—

C.M.G.

* * * *

Lieut.-Col. (temp. Col.) William Dunlop Smith, D.S.O.

REGULAR FORCES. ARMY VETERINARY CORPS.

Aug. 23.

To be temp. Lieut.:—R. E. Bond (Aug. 8).

Aug. 24.

To be temp. Lieuts.:—F. C. Scott, J. W. Knowles, K. A. Miles (Aug. 8).

Aug. 25.

Temp. Lt. to be temp. Capt.:—H. Brinsmead (Aug. 4).

To be temp. Lieuts.:—E. A. Pearce, F. Christopher, E. P. Shallcross (Aug. 13); P. W. Bloye, L. P. Pugh (Aug. 14).

Aug. 27.

Temp. Lieuts. to be temp. Capts.:—G. Howie, J. F. Filmer (Aug. 1).

Aug. 28.

Temp. Lieut. to be temp. Capt.:—J. Smith (Aug. 1).

To be temp. Lts.:—V. Franklin, T. J. Lewis (Aug. 14); N. H. MacAlister (Aug. 15).

Aug. 29.

To be temp. Lieut.:—F. Donne (July 23).

The following casualty is reported:—

DIED OF WOUNDS—Actg. Sgt. R. Vincent, 13019 (Chertsey).

OBITUARY.

P. J. DUNNE, M.R.C.V.S., Osborne Lodge, Kildare, Ireland. Graduated, Dublin: Dec., 1915.

Mr. Dunne died May, 1917.

Col. J. C. DWYER, M.R.C.V.S. (late A.V.S.), c/o Messrs. H. S. King & Co., 65 Cornhill, E.C. Lond: April, 1868.

Death occurred Aug. 20th, 1917.

J. F. FARRINGTON, M.R.C.V.S., c/o Mr. James Kelly, Kilcock, Co. Kildare. Lond: July, 1885.

Mr. Farrington died 16th May, 1917.

GEORGE PINCHIN, M.R.C.V.S., Bulawayo, S. Rhodesia, S. Africa. Lond: July, 1906.

His death took place May 12th, 1917.

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1917 :—

G. Condor, Lt.-Col. A.V.C.	£1	1	0
J. Latta, Ulverston	1	1	0
F. S. Warburton, Capt. A.V.C.	1	1	0
Previously acknowledged	861	7	0
	£864	10	0

Mutton *v.* Venison in Cumberland.

A Cumberland correspondent to the *N.B.A.* writes:—The statement that the Cumberland Food Production Committee have demanded the extermination of the herd of wild fallow deer ranging Gowbarrow Fell, Ullswater, is incorrect. The Committee require that a portion of the extensive hill grazing owned by the National Trust should be devoted to cattle and sheep. The deer will be thinned, but a breeding stock left to increase in happier times when tourists again wander over the wild park. A difficulty which will present itself, however, is that grazing deer and sheep together is something akin to trying to mix oil and water. Both seek the same short sweet grass and crop it to the very roots, delaying its growth, and hence are antagonistic to each other. Then the constant attention, the regular rounding up by dogs, that sheep require in the lambing and maggot fly seasons, disturb and unsettle the deer and drive them off the ground. On the other hand, they do not resent the presence of cattle or ponies, and where there is sufficient grass for them and the ground is not too precipitous, cattle improve the grazing for sheep and deer. As for ponies, they can turn extremely barren land to profitable account, as they require little or no attention, and the old Highland and Fell strains are hardier than either sheep or deer, and fend for themselves better in heavy snow. Across the Lake on the Martindale Fells, where Lord Lonsdale is the lessee of the shooting, there is a herd of wild red deer, and the stags, powerful venturesome animals, sometimes swim the half-mile of lake to the Gowbarrow side. Ardent Lakelanders hold that the presence of these two species of wild deer add a charm to the Ullswater district, and make it in some respects, a miniature reproduction of the famous Yellowstone Park where the fauna of North America is preserved.

THE CRUELTY CHARGE AT SWANSEA.

I have read the report of the cruelty charge at Swansea in your last issue with interest, and have endeavoured to sift the evidence on both sides, which is very unsatisfactory to say the least of it. It is inconceivable that a fully qualified veterinary surgeon, Mr. Pike, the defendant, who has been in practice, according to the Register, for twenty-one years, would send a mare alleged to be suffering from double-pneumonia, with hydro-thorax, and running sores, to work, as suggested by Mr. Samson. If the mare was knowingly worked in a practically dying condition, where were the the Swansea Police, or R.S.P.C.A. Inspectors? Why didn't they arrest him?

Now, Mr. Samson suggests that death was due to flogging. I suggest, from the evidence of Mr. Scott Weir, M.R.C.V.S., who attended the post-mortem, that death was due to hydrops pericardium, a sequel of hydro-thorax, the result of pleuro-pneumonia, a debilitating disease which causes emaciation. Also, it would be interesting to know what V.S. treated the mare originally—previous to being sent to Mr. Pike, who apparently has some pretensions to being a horse-breaker himself, or employs a capable man; otherwise, I presume that he wouldn't have been asked to take her in hand to break her in and get rid of her jibbing propensities. I wonder whether the V.S. in attendance adopted serum-therapy, or anti-streptococcus treatment: if so, perhaps we have the cause of the sores described. Or were they the result of the chafing of the harness, which produced erythema intertrigo, in consequence of the mare's blood being in a vitiated state, in a soft condition, which might cause it to jib—and no wonder. Mr. Pike says he had frequently seen the mare, but saw "no signs of disease," gave medicines, but had not drugged her. I presume he had given astringent lotion for sore shoulders. What V.S. ever saw a case of Hydro-thorax which didn't develop dropsical swellings between the fore-legs?

The case and result creates a precedent and involves a moral—never take a debilitated animal in your custody, for her services in return for her keep—certainly not in war time, when you have war rations to abide by, if you are aware she is a jibber, and a supposed convalescent animal. For assuredly the term "convalescence" doesn't altogether mean recovery from disease.—Yours truly,

Aug. 27. M.R.C.V.S. (1896).

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
		Outbreaks (a)	Animals.	Outbreaks (a)	Animals.	Outbreaks (b)	Animals.	Outbreaks (b)	Animals.	(b)	Outbreaks (a)	Slaughtered.
GT. BRITAIN. Week ended Aug. 25		1	2				2	19	24		26	17
Corresponding week in	1916 ...	6	11			1	1	22	31	2	59	57
	1915 ...	5	5					16	26		65	301
	1914 ...	7	9			2	2	3	3	1	58	347
Total for 34 weeks, 1917		322	370			18	32	1850	3611	395	1687	732
Corresponding period in	1916 ...	366	435	1	24	35	90	1679	3789	182	3233	8589
	1915 ...	412	472			35	64	573	1247	159	2936	13154
	1914 ...	512	555	11	74	72	218	1519	2631	152	2769	28759

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.

(a) Confirmed. (b) Reported by Local Authorities.

† Counties affected, animals attacked :—London 2.

Board of Agriculture and Fisheries, Aug. 28, 1917

Excluding outbreaks in army horses.